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Cincinnati Univ, Ohio Southwestern Ohio Regional Computer Ctr

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Model State Information System Training Program

Volume IV

Participant's Handbook

For

SELECTION PROCESS

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This handbook is designed to present all materials needed for persons participating in the Model State Information System (MSIS) Selection Process Training Program.

This participant's handbook is designed to be used in two ways: First, during the actual training as a classroom aide, and Second as a reference tool when on the job.

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Ellen G. Miller
Project Manager, OWS-77-01

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INTRODUCTION

This handbook is designed to present all materials needed for persons participating in the Model State Information System (MSIS) Training Program. The MSIS Training Program consists of six instructional courses:

VOLUME I- MSIS OVERVIEW
VOLUME II- MSIS SUBSYSTEMS
VOLUME III- DATA ENTRY
VOLUME IV- SELECTION PROCESS
VOLUME V- MSIS COMPONENTS
VOLUME VI- SYSTEM SPECIFICATIONS

Volumes I - IV were created primarily for State Water Division personnel while Volumes V and VI focus on State ADP personnel.

This participant's handbook is designed to be used in two ways: first, during the actual training as a classroom aide, and second, as a reference tool when on the job. Since a considerable amount of detail is provided and the looseleaf format facilitates additional material and updates, conscientious use of this handbook can result in greater understanding of the entire MSIS system.

PURPOSE

PURPOSE:

The purpose of this course is to attain two types of trainee goals, content and non-content. The content goals are knowledge acquisition and skill attainment. The non-content goal is attitude. The four specific goals for this course are:

Knowledge:

Trainees will know the methods to use in specifying what output reports are needed.

Trainees will understand the consequences of using options offered by the MSIS selection process.

Skill:

Trainees will be able to complete the forms needed to operate the MSIS selection process.

Attitude:

Trainees will be confident in their basic knowledge of the MSIS selection process and their ability to use it.

Unit 1: Processing Options

Goal: To provide the trainee with an understanding of the selection process and some practical ability in completing the processing option input forms to produce the desired results.

Behavioral Objectives:

1. Identify the specific purpose of the entries on given PROC, SORT, SEL1 and SEL2 input forms.
2. Choose the best valid entry for each field on the PROC, SORT, SEL1 and SEL2 input forms.
3. Complete specified PROC, SORT, SEL1 and SEL2 input forms.
4. Name the four types of conditions that can be specified on SEL1 and SEL2.

5. Name at least two of the five criteria used by the Sanitary Survey subsystem.

6. Explain the three main purposes of the Water Quality Compliance scheduling input form.

7. Complete the sanitary survey and water quality compliance scheduling input forms.

Time Allotted: Seven hours

Unit 2: Workshop

Goal: To strengthen the trainee's understanding of the consequences of the selection process.

Behavioral Objectives:

1. Compare selection inputs with the results.

2. Identify errors on specified input forms.

3. Correct errors on specified input forms.

Time Allotted: Two hours

SUMMARY OF COURSE CONTENT

Purpose

The 'primary' purpose of the PROC form is to initiate a program run. The PROC form allows the user to mechanize his first decision; that is, to run MSIS. This form also specifies the subsystem to be run, the specific program within the subsystem, and whether or not a report is desired. If a report is desired, the PROC form may specify the type, date and period of the report.

How Many

There are about 27 PROC forms. Each subsystem uses at least one. We will cover eight representative PROC forms here, moving from the simpler to the more complex.

REGS.100

Our first PROC form is the REGS.100 shown in the slide. It will be utilized by the State at an early date since it performs the function of creating the REGS File. This is the only PROC Input Form used by the REGS subsystem. It precedes the REGS Table Creation Forms required to install federal and any State regulations. It specifies the date of the file's creation and of the subsequent input report.

The two fields shown here are the four position card ID which spells out PROC and the standard six position date. The month, day, and year each require two positions. Zeros are used as necessary.

Note that the user can choose to create a special file of error records. This example has a special file of error records. This example has the "N" entry, indicating no file creation is desired. In line 2, there is a "Y" to specify a print-out of the data element fields in error.

Recall that file creation probably means that MSIS would output the information on magnetic tape, not on a user-readable printed listing.

FEDR.100

The FEDR.100 PROC form shown here is the only input form used by the FEDR subsystem. It contains the date and period covered in the report. The report is a magnetic tape whose contents fulfill three of the four federal reporting requirements handled by MSIS.

The two fields shown on the second data entry line specify the period to be covered by the report. In both fields the common six-digit entry is used. These particular entries show how the first report for the federal government might be generated, covering the 1977 fiscal year.

Since the federal government will be receiving reports from many States, the field shown here specifies the State identification (ID) for federal reporting. This example is "OH" for Ohio.

MSIS.100

MSIS.100 is a PROC form used by the Standard Processing subsystem to purge the Standard History File, or SHF. It is occasionally necessary to purge large files of unneeded records to prevent their becoming unwieldy and expensive to manipulate.

The field in positions 14-19 specifies the purge date for file entries; that is, all dates earlier than the date shown are no longer considered required and will be purged from the system.

The field in the second line, position 20, again allows the user a processing option. Here, the choice is between entering a 1, as in this example, which instructs the computer to print all the purged records, or by entering a 2, which tells the computer not to produce a report. It is usually a good idea to print out the purged records on a report in case they are required for further reference.

Remember MSIS keeps records and the regulations specify how long. The date of 1/1/84 was chosen because it represents a reasonable estimation of when the SHF might first be purged.

WAQC.130

The WAQC.130 performs the same general function as the previous example. In this instance, it is input to the WAQC subsystem to purge all records in specified contaminant groups from the SAF, if the records are older than the specified date.

Notice that the information in the second column, contaminant group, is pre-printed. The user then may choose to enter a purge date against any or all of the five contaminant groups pre-printed here. In our example, purge dates are entered for the "0" which is turbidity and the "3" which is the microbiological contaminant group. All codes for the contaminant groups are listed in the Data Element Dictionary.

Finally, notice the report option in the lower right-hand corner. A "Y" entry, as this example shows, instructs the computer to print a report listing all purged records.

PWSI.103

The PWSI.103 is used to purge records from the Public History File. Recall that the State's PWS Inventory is maintained on the Public Water File and that the file is so large that it has its own history file, the PHF. Do not confuse fields 2 and 3, which are both headed by the word, "Date". The third field contains the purge date.

PWSI.111

Note that the more complex PWSI.111 PROC form contains both standard error processing options and several new report options which apply to PWS records on the PWF.

Look at the key which explains the codes usable in the four options. The 1 and 3 codes are the familiar instructions to the computer to produce or not to produce a report. The second option, identified with a 2, would only be applicable to turn-around documents. Now let's look again at the report options.

Note that for the report options at positions 15 and 16, the user cannot select option 1, which is "No Report". The MSIS was programmed to always supply the user with reports of incomplete PWS records and status requests. Note also, that all four of the report options may be coded as a 2 for the pre-printed status and entry form (turn-around document).

PWSI.113

PWSI.113 allows the user to tell the computer which of the listed report-producing programs should output a report. The four programs are always run together. More than one report may be selected. This example has specified that a State Discretionary Data Report be printed.

Recall that a State Discretionary Data Report contains the special requirements set up by the State for a particular PWS as authorized by the regulations. Such things as special monitoring for radiological contaminants and variance and exemption data are included.

The numbers to the left of the data entry positions identify the PWSI program which can produce a report. The first three positions are the routine Y = yes for report, N = no report, while the fourth position again provides the turn-around document option selected here by entering a "2". Descriptions of each report may be found in the User's Manual.

SRVY.100 Problem: Request MSIS on 6/23/77 to generate two schedules for sanitary survey for the rest of the year 1) based on a weight of .9 for the population served by the PWS and a weight of .1 on the type of source water, and 2) based solely on the population served by the PWS.

Here is a problem concerning a complex PROC. SRVY creates the sanitary survey schedule using the information contained on this SRVY.100.

Since the selection criteria have been predetermined, SEL1 and SEL2, are not required. A SORT form may be used in some instances but is not always required.

As a result of this consolidation, some special entries are required on this PROC form which make it more complex than those we have encountered so far.

The titles over the selection weights blocks represent the pre-specified criteria used by the computer to automatically select PWSs for a sanitary survey. The entries in the blocks are weights established by the State to assign their relative priority to each area. The higher the numerical number entered, the higher the State priority on that particular item. Any entry may range from 0.0 to 1.0, but the total of all five entries must equal 1.0.

Positions 21 and 22 allow the user to choose, or not, the output of a priority and a schedule report respectively. A priority report is sorted. If a "Y" is entered here, a SORT form is required. A schedule report is in the sequence determined by the computer, and therefore, is not sorted. In this example, we have selected both reports with "Y" entries. Although this is possible, normally the priority report would be produced for examination of the priority results before producing the final approved schedule report.

Position 23 is completed for the priority option. It may be completed with a 1 for all PWSs, a 2 for specific regions and/or districts, and a 3 for equal distribution among all regions. These are specified in the Data Entry Instructions.

Positions 24 through 27 indicate the report limit. In this position the State can specify a certain number of PWSs it would like reported because it knows how many sanitary surveys it can perform. If left blank, the report will be unlimited, and will schedule all PWSs using the weighting criteria. The example is blank because priority option 1 for all PWSs was selected.

Note that each field contains two positions, but that in all cases two fields are joined. Invariably, the first two-position field will be the region, and the second two-position field will be the district. At least one region entry must be made if priority option 2 was selected and no entry may be made if priority option 2 was not selected. In this example, priority option 2 was not selected so these fields must be left blank.

These two fields indicate the period that the schedule will cover. The first field is for the beginning date; the second field, for the ending date.

There is provision here for a one-digit entry in position 60. The key is shown to the right for the PWS report option. As indicated, the 1 is "Do not produce a report", the 2, "Produce a report on the pre-printed status and entry form" (turn-around document); and the 3, "Produce a comprehensive report". These options only apply to the schedule report (position 22) and an entry should be made if that option is "Y". The 3 entry here will produce a schedule report.

SRVY.101

Note that the SRVY.101 SORT form is only used when the priority report option of SRVY.100, position 21, contains a "Y" and the priority option selected is "1" or "2". Otherwise this single PROC form, SRVY.100 is the only input form required to produce the Sanitary Survey Report. Since we have a "Y" in position 21 and a "1" in position 23, a SORT form could be submitted. If it is not included, the program will run and sort the report in the sequence generated by the weights.

Error messages

In MSIS, there are three general categories of error messages.

1. Data entry error messages are contained on the Error Message Table; they are output in Data Entry Error Reports; they are always preceded by either the word, "Warning", "Invalid", or "Reject"; and do not stop the program run.

2. Processing option errors do stop the program run and result in the Standard Error Report. As we discuss the PROC, SORT, and SEL forms, we will look at the possible error messages for each.

3. When an EPA required field is omitted, a warning message is generated on the third type of error report, the Standard Warning Report.

PROC error messages (second category)

The purpose of all PROC Error Messages is to advise the computer operator that a problem occurred which must be corrected before the run can be made. They are:

- Two PROC Records Supplied
- No Processing Option cards were provided
- PROC type not SEL1, SEL2, SORT, or PROC
- PROC card contains an invalid date

Two PROCs indicate confusion or a mix-up; therefore, the run stops.

If no PROC is present, a mistake has been made and again the run stops.

If a non-"Processing Option" input form was used, a mistake has been made and the run stops.

An invalid date indicates an error; therefore, the run stops.

Purpose

Our second type of Processing Options form is the SORT form. As previously mentioned, the PROC forms mechanize the user's decision to run the computer and determine what subsystem will be run, what programs within that subsystem will be run, and whether or not a report will be produced.

SORT forms indicate the data elements to be used in sorting, specify the sorting sequence, the sequence of their use, and indicate either an ascending or descending sorting order.

Limitations

MSIS has two sort limitations. First, only the first 15 positions of any single field are used in a sort. Second, the total of all of the positions of all of the fields specified may not exceed 30 positions. The Data Element Dictionary must be consulted to determine the length of the data elements to be used.

Variables and number

The six SORT forms used by MSIS are quite similar. The only variables are the subsystem name, the form ID, and the program ID. Only the REGS and FEDR subsystems do not use the SORT form, since, in both instances, their file contents cannot be rearranged in an output report. Consult the User's Manual for the specific use in any particular program.

PWSI.100

Look at PWSI.100. Under the heading, "Sort Sequence", we see five entries, the maximum number that can be entered with any one SORT form. However, two SORT forms may be used in one program. We notice that the sort sequence is numerical, consecutive, and ascending, a mandatory format for the SORT form.

The mnemonic name of the data element to be sorted in each of the sequences previously entered must be given. The correct name as well as the size of the field is obtained from the Data Element Dictionary. Recall that the total number of positions in the sort cannot exceed 30. The fields shown in this example add up to exactly 30 positions: plant type 1, cycle 2, storage 10, production 10, and ID 7. Also, since no field exceeds 15 positions, no sorting problem will occur.

SORT error messages

Here is the list of SORT errors:

- Maximum Sort--Key size has been exceeded
- Sort Sequence field not numeric
- Two sort fields have the same sequence number
- Sort sequence number greater than 10
- Sort Option mnemonic name is invalid
- Sort mode is not ascending or descending
- Non-consecutive sort sequence values

Note that all SORT errors stop the run.

Purpose

The purpose of SEL1 and SEL2 is to select records, a complex process.

It should be noted that SEL1 and SEL2 are both required for record selection. Neither is complete without the other.

Logic Combinations in MSIS

There are three logic selection conditions which are expressed with SEL1 and SEL2: the SIMPLE the AND, and the OR conditional statements. Combinations of each may also be used.

In the SIMPLE condition, only one conditional statement is specified. Only one SEL1 and one SEL2 are required.

Selection with the AND condition means the record will be selected if, and only if, it meets both conditions, that is, condition one and condition two. In completing SEL2 for the AND condition, two entries are made on the same form. As usual, only one SEL1 is needed.

Selections with the OR conditional statement mean the record will be selected if it meets either condition specified, that is, condition one or condition two. The OR condition requires two SEL2 forms for each OR statement. Again, one SEL1 is sufficient.

MSIS.106

MSIS.106 is a SEL1 input form for the Standard History File. The mnemonic name of the data element to be compared for selection is entered; and the value of the data element to be compared against MSIS files is entered.

The data element logic ID number is vital since this is the link that connects the SEL1 to SEL2.

MSIS.107

MSIS.107, a SEL2, consists of pre-printed data element logic ID's and their associated relation symbols.

The first field contains the pre-printed data element logic ID number. In this example it is "01". This number corresponds exactly to the data element logic ID number of "01" that was assigned to a line on SEL1.

The second field on this SEL2 is then used to enter the desired relation between the value of the specified data element of any one record and the value specified for comparison on SEL1. One of the following six entries is permissible:

Less than	Not less than
Equal	Not greater than
Greater than	Not exists (empty)

SEL error messages

Errors in SEL1 and SEL2 input forms stop the run.

The error messages for the SEL1 input forms are:

- Invalid file ID in SEL1 Record
- Two SEL1 records have the same logic ID
- Mnemonic name in SEL1 record is invalid
- SEL1 value too long for specified mnemonic
- No SEL1 option card was provided
- Logic ID greater than 35 in SEL1 record
- SEL1 update-date value is not a valid date
- SEL1 record-ID value not numeric
- SEL1 catalog-number value not numeric

Here are the SEL2 error messages:

- SEL2 operand has no matching SEL1 record
- No SEL2 option card was provided
- More than 35 SEL2 records were provided
- SEL2 record has invalid rational symbol

VEF problem

Here is the first study problem for SEL1 and SEL2:

1. Request a report of all changes to the Variances and Exemptions File (VEF) be produced on 1/2/78.

2. Sort the information by the most current change.

3. If more than one change was recorded on the same day, sort by the previous update date.

You can think immediately of the three steps in the decision-making process. That is, use a PROC form to initiate a run, a SORT form to order the information, and the SEL forms to select the records. Now let's look in detail at that process.

MSIS.105

The history records for the VAEX subsystem contain all changes made to the VEF. These records are maintained by MSIS on the Standard History File. Therefore, we use the MSIS.105 PROC form to (1) initiate the program run to generate the SHF report needed and (2) provide the date for the report. In this example it is January 2, 1978.

MSIS.108

The MSIS.108 SORT form is required to position and order information on the SHF report. Two entries are required since two sorts are needed.

The Data Element Dictionary shows two dates on the SHF: SH-CUR-UP and SH-LST-UP. Since there is some question as to which date is the most recent change, we look in the DED for a description of the two dates.

We find that SH-CUR-UP is the date of the most recent change and that SH-LST-UP is the previous date of change. Therefore, the first sort sequence "01" is SH-CUR-UP in a descending mode. The second sequence, "02", is then the SH-LST-UP in a descending mode. This information will be a subset of the first sort.

MSIS.106

Next, we use MSIS.106 to select history records from the VEF, since the SHF contains history records not only from the VEF, but also from the EAF, VIF and OMF. The DED shows that SH-FILE-ID specifies the file that the history record is from; therefore, we enter SH-FILE-ID. Since the File ID we want (or comparison value) is the Variances and Exemptions File, a VE is entered.

MSIS.107

Since only one comparison was specified, our condition logic is the SIMPLE condition. Thus, we would expect the accompanying MSIS.107 SEL2 form to show a single entry. The relation "EQ" for equal is assigned against the matching SEL1 "01" logic ID number. Therefore, the computer will select all records on the SHF that contain VE data.

Condensed report problem

The second study problem represents the AND logic condition.

1. Request a condensed report of variances and exemptions that were in effect during the entire year of 1977.

2. This report should be generated on January 2, 1978.

3. It should be sorted by variance and exemption ID, ascending, within variance or exemption type (V or E), descending, within ascending PWS-ID.

VAEX.104

The PROC form, VAEX.104, initiates the program run and specifies the current date which will be printed on the requested report. In this instance, we have two report options. We choose the condensed report and refuse the case history since it wasn't requested.

VAEX.103

The first line of data entry on VAEX.103 will sort the selected records by PWS ID and list them in an ascending order. The second sort will group the variances and exemptions granted to a particular PWS and will, as a result, list them in descending order, putting variances first and exemptions second. The third sort will look at the variances and exemptions for a PWS and sort them by the variance or exemption ID in an ascending order.

VAEX.105

Using VAEX.105, the SEL1, we know we want to specify the selection of all variances and exemptions in effect during the year of 1977.

Here's one way to do it. One condition for selection of a variance or exemption in effect during 1977 would be if its expiration date was greater than the last day of 1976. We use the Data Element Dictionary to find an expiration date on the file called VE-EXP-DT. Therefore, the first line of data entry is the data element for variances and exemptions expiring, VE-EXP-DT, and the corresponding comparative value is 12-31-76.

If we select all variances and exemptions whose expiration date is later than 12-31-76, will we get all variances and exemptions in effect during 1977?

The answer to that question is "yes"; however, that's not all we will get. Suppose there are either variances or exemptions on file with an effective date in 1978. Since their expiration date is after 12-31-77, they satisfy our first condition. However, they were not in effect during 1977 and must be excluded. To do this we must specify a second condition.

So, we consult the DED for an effective date and find one under the name VE-EFF-DT. This becomes our second condition for record selection. On the second data line we enter the data element effective date, VE-EFF-DT, and the corresponding comparison value of 01-01-78.

VAEX.106

Remember, in stating the first condition on SEL1 we said the variance or exemption expiration must be greater than 12-31-76 for the variance or exemption to be in effect during the year of 1977. The relation symbol for the first logic ID is shown as "GT" for greater than.

For the second condition, we said the effective date of the variance or exemption had to be before 01-01-78. Thus, the relation symbol for the second logic ID is shown as "LT" for less than.

The AND condition requires that a record must satisfy both conditions to be selected. By using one SEL2 and entering both relation symbols, we have correctly represented the AND logic condition. Notice that the use of one condition selects a subset of the whole file. Use of the AND condition makes it more difficult for a record to be selected and therefore the resulting selected group is a subset of the first subset.

Summarize the second problem and its solution.

ENAC case histories

Now let's look at the third study problem, which uses the OR logic condition.

1. Generate enforcement action case histories for those actions whose legal status is either "not a legal action" or "initial action pending".

2. Arrange the report in ascending order by the PWS involved.

This problem satisfies the OR logic condition since we want those whose:

1. Legal status is "not a legal action", OR

2. Legal status is "initial action pending."

ENAC.105 and ENAC.106

The correct PROC is ENAC.105. Again, we input the current date, and we specify the case history report.

As expected, ENAC.106 SORT contains one entry since we want only the EAF. There is one sort sequence; the data element to be sorted on is the PWS ID. The mode is ascending.

ENAC.107

In this SEL1, ENAC.107, the data element mnemonic name again comes from the record layout of the EAF. ENAC.107 contains two entries since two data element comparative values are required for the OR logic condition. The legal status of "L" was found in the Code Value Table and means "not a legal action." "I" is the code for "initial action pending."

Note that in the first field of each of the two lines of data entry the data element mnemonic name is identical. In each instance it is the legal status. The distinction we want to make is the comparison value within that legal status. As a consequence, we enter the comparison values of "L" and "I" in the second field of each respective line of data entry.

Don't forget the data element logic ID! It's a required entry and if omitted will produce an error message.

Two ENAC.108s

Look at SEL2, ENAC.108. We know that an OR condition was used for the selection. Therefore, two SEL2 forms are required with one relation symbol entry on each form.

Here is the first SEL2. For the first data element logic ID whose comparative value on SEL1 was "L", a relationship of equal is specified since we want those with legal status of "L".

The relation symbol of equal is shown here for the second logic ID entered on SEL2, which was the comparative value of "I". Remember, the "I" comparative value must be associated with the logic ID number specified on SEL1, or 02.

Consider what would happen if we had made both entries on one SEL2. The conditional statement would have been legal status equal to L and I. Since an enforcement action can have only one legal status, none of the records on the file would have met both criteria. As a consequence, we would get a blank report.

Create mailing labels

Our last problem is to create one mailing label for each PWS operator whose certification in class "0" or "6" will expire before July 1, 1978. This problem contains both AND and OR conditions.

OPER.102

OPER.102 PROC form not only enters the date but also allows for options.

Our only requirement within the options indicated is to produce mailing labels. Therefore, a "Y" for yes is entered in position 16, and in position 17 a 1 to produce one label for each record selected.

OPER.103

One sorting sequence requires one entry on the SORT form, OPER.103. OM-ADS-ZIP is the data element mnemonic name from the OMF record layout for zip code. Since no other SORT criterion is specified, any two selected OMF records with the same zip code will be sorted in the sequence of the file; that is, OM-ID. Printing in zip code sequence usually aids the post office in processing MSIS mailings.

OPER.104

Three conditions were specified in the problem: (1) PWS operators with a class "0" certification, (2) PWS operators with a class "6" certification, and (3) PWS operators whose certification would expire before July 1, 1978.

On OPER.104, the first and third lines of data entry specify the operator class, with the corresponding data element comparative value of 0 and 6.

The second line of data entry is for the renewal date of the operator license. The required comparative value is July 1, 1978. The sequence of the entries on this SEL1 does not matter as long as the correct relation symbol is specified on the appropriate SEL2's.

How are the conditions related? Well, to be selected a record must contain a certified operator in class "0" AND one whose certificate renewal date is less than July 1, 1978, OR a certified operator in class "6" AND whose certificate renewal date is less than July 1, 1978.

Two OPER.105s

Look at the first SEL1, OPER.105. The "01" logic ID on SEL1 was for the class "0" operator and the relation symbol here must be equal in order to select those records.

The second data element was the certificate renewal date. Since we are looking for those certificates whose renewal dates are less than July 1, 1978, our relation symbol for the second logic ID must be LT. That concludes the AND condition, which we are able to specify on a single SEL2.

However, there is also an OR condition, since we must also select operators whose certification is class "6" and whose certificate renewal date is less than July 1, 1978. We need another SEL2.

By using a second SEL2, a record will be selected if either the first or the second pair of conditions is met. In this case the certificate renewal date is also less than July 1, 1978. So, we find the relation symbol shown here as LT, for the "02" data element.

This SEL2 must also satisfy the AND logic, and the operator class must equal "6". To select those records, our relation symbol must be EQ for the "03" data element.

41B1
(1-4)

MSIS BACKGROUND INFORMATION

Name: _____ Postal Code: ____ Date: / / / / / /
(5) (30) (31-32) Month Day Year (33-38)

1. Circle which MSIS training courses you have already taken:

   (39) a. None. Go to question 2.

   (40) b. MSIS Overview

   (41) c. MSIS Subsystems

   (42) d. Data Entry

2. Have you filled out one of these MSIS Background Information forms before?

   (43) ___ Yes. Thank you for the data; go to the Pre-test.

   (44) ___ No. Go tc question 3.

3. Age: ____ years (45)

4. Sex: ___M (46) ___F (47)

5. What was the highest level of schooling you attained? (circle one)

   9 10 11 12 High School (48) | 13 14 15 16 College (49) | M.A./M.S. (50) | Ph.D. (51)

   Other (please specify) _____ (52-76)

6. Specify your major where appropriate:

   College (77) | M.A./M.S. (78) | Ph.D. (79) | Other (80)

7. What is your job title? (5) _____ (30)

8. How long have you held your present position? ___ (31) years ___ (32) months

9. How many years experience do you have in the general area of your present job position?

(33) ___ (34)

10. Have you had training related to your present position in the past two years (other than the present MSIS training)?

(35) ___ No. Go to question 11.

(36) ___ Yes. Please answer the following:

a. What was the subject? (37) _____ (51)

b. What was the length of training? (52) _____ (55)

c. Who offered the training? (56) _____ (65)

d. Rate your knowledge resulting from the training.

(66) None (67) A little (68) Some (69) Quite a bit

(70) Great deal

11. Please rate your current knowledge level of data processing (circle the appropriate answer).

(71) None (72) A little (73) Some (74) Quite a bit

(75) Great deal

12. Please rate your current knowledge level of the Federal Regulations pertaining to Safe Drinking Water Act of 1974 (circle the appropriate answer).

(76) None (77) A little (78) Some (79) Quite a bit

(80) Great deal

Thank you for your cooperation.

PRE-TEST

SELECTION PROCESS

Name: _____ (5-30) Postal Code _____ (31-2) Date ___/___/___ Month Day Year (33-8)

1. Match the types of input forms with their function:
(A given form may be matched with more than one function)

Form	Function
a. Processing option	(39)____ enter sample and analysis data
b. Table creation	(40)____ enable the user to specify needed reports
c. Record creation & maintenance	(41)____ enter data into MSIS tables
d. Water quality transactions	(42)____ enable the user to specify a needed PWS listing
	(43)____ enter PWS-related data to a file

2. Circle T (True) or F (False) for the following statements:

T F (44) "PROC" is a processing option input form used both to initiate a program and to specify the subsystem to be run.

T F (45) "SORT" is a processing option input form used to specify a desired sequence of records for output.

T F (46) "SEL1" or "SEL2" is the processing option input form used to select records from MSIS files.

T F (47) Record creation and maintenance forms are used to enter sample and analysis data.

T F (48) The Sort Sequence numbers must be entered on the "SORT" form in ascending consecutive sequence.

T F (49) The Sort Mode must be specified as either an ascending or a descending order.

T F (50) The Data Element Logic ID number on "SEL1" and "SEL2" is used only to associate the information on the two forms.

T F (51) The Logic ID's entered on "SEL1" must be in ascending consecutive sequence.

T F (5) The Sanitary Survey PROC form is used to enter the results of a sanitary survey.

T F (6) The Sanitary Survey SORT form is required when scheduling sanitary surveys.

T F (7) The "and" conditional statement means a record will be selected if it fulfills all the requirements specified.

T F (8) The "and" and "or" conditional statements may be entered simultaneously to select records.

3. Circle <u>all</u> of the following that are true:

(9) a. the maximum number of SEL1 entries is 35.
(10) b. the maximum number of SEL2 entries is 35.
(11) c. the maximum number of SEL2's that may be entered in one selection run is 35.

4. Circle all of the following statements which describe what the PROC form <u>can</u> specify.

(12) a. the date of the output
(13) b. the period covered by the output
(14) c. the criteria for selecting records for output
(15) d. report options
(16) e. standard error processing options
(17) f. which State the output is from
(18) g. the order of the output
(19) h. the purge date of a file

5. Circle <u>all</u> of the following which must be specified on the SORT form to perform its function.

(20) a. ascending or descending order
(21) b. the value of the data element to be used
(22) c. the data element to be used
(23) d. the sequence of the data elements to be used
(24) e. relation symbols

6. Circle <u>all</u> of the following which must be specified on the SEL1 form to perform its function.

(25) a. ascending or descending order
(26) b. the value of the data element to be used

(27) c. the data elements to be used
(28) d. the sequence of the data elements to be used
(29) e. relation symbols

7. Circle all of the following which must be specified on the SEL2 form to perform its function.

(30) a. ascending or descending order
(31) b. the value of the data element to be used
(32) c. the data elements to be used
(33) d. the sequence of the data elements to be used
(34) e. relation symbols

8. Rate your current level of knowledge about MSIS. (Circle one)

(35) None (36) A little (37) Some (38) Quite a bit
(39) Great deal

Introduction
- MSIS Development
- MSIS Capabilities
- MSIS Characteristics
- MSIS Output Reports

MSIS Subsystems
- Regulations (REGS)
- PWS Inventory (PWSI)
- Water Quality Compliance (WAQC)
- Federal Reporting (FEDR)
- Standard Processing (MSIS)
- Variances and Exemptions (VAEX)
- Enforcement Actions (ENAC)
- Sanitary Survey (SRVY)
- Operator and Mailing (OPER)

Volume IV
Selection Process

- **MSIS Characteristics**
  - ☐ MSIS Subsystems
  - ☐ MSIS Files
  - ☐ MSIS Tables

MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)
- Variances and Exemptions (VEF)
- Enforcement Actions (EAF)
- Operator and Mailing (OMF)

MSIS Tables

- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)
- Laboratory (LBT)
- Public Water (PWT)
- Regulations (RGF)

- **MSIS Output Reports**
  - ☐ Statistical
  - ☐ Input
  - ☐ Error
  - ☐ Informational

☐ **Informational Output Reports**

- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Reports
- Compliance Summary Report
- Chemical Sampling Schedule Reports

Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance
- Water Quality Transactions

Unit 1
Processing Options

Processing Option Input Forms

PROC
SORT
SEL1 (Selection Criteria 1)
SEL2 (Selection Criteria 2)

PROC Input Form

- Initiates Program Run
- Specifies Options
- Most Used

REC5010

MODEL STATE INFORMATION SYSTEM
REGULATIONS SUBSYSTEM

REGS.100

PROCESSING OPTIONS FOR JOB _____

CARD ID	DATE M	DATE D	DATE Y
PAOC	09/	07	77
1-4	5-10		

STANDARD ERROR PROCESSING OPTIONS:

[N] 11 Y = YES - CREATE A SPECIAL FILE OF ERROR RECORDS
N = NO - DO NOT CREATE A SPECIAL OUTPUT FILE

[Y] 12 Y = YES - PRINT ONLY THE DATA ELEMENT FIELDS WHICH WERE IN ERROR
N = NO - PRINT ALL DATA ELEMENT FIELDS

PREPARED BY J Smith DATE 2/2/77

APPROVED BY _____ DATE __/__/__

FEDR010

MODEL STATE INFORMATION SYSTEM
FEDERAL REPORTING SUBSYSTEM

FEDR.100

PROCESSING OPTIONS FOR JOB_____

CARD ID	DATE (M D Y)
P A C C	1 2 0 1 7 7
1-4	5-10

REPORTING PERIOD FROM (M D Y)	REPORTING PERIOD TO (M D Y)	POSTAL STATE ABBREVIATION
1 0 0 1 7 6	0 9 3 0 7 7	O H
14 - 19	20 - 25	26-27

DEFAULT REPORTING PERIOD IF NONE IS ENTERED: LAST YEAR BASED ON THE DATE IN COLS. 5 - 10

PREPARED BY J Smith DATE 11/30/77

APPROVED BY _____ DATE __/__/__

MSISO50

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

MSIS.100

STANDARD HISTORY FILE PURGE

PROCESSING OPTIONS FOR JOB _____

CARD ID	CURRENT DATE M D Y	PURGE DATE M D Y	
P A O C	0 1 0 1 8 4	1 2 3 1 7 8	DATE USED TO DETERMINE WHICH RECORDS ARE TO BE PURGED
1-4	5-10	14-19	

STANDARD HISTORY PROCESSING OPTION: [1] (20)

SELECT THE CODE FOR THE TYPE OF HISTORY REPORT TO BE PRINTED
1 = PRINT ALL THE PURGED RECORDS
2 = DO NOT PRODUCE A REPORT

PREPARED BY J. Smith DATE 1/1/84

APPROVED BY _____ DATE __/__/__

WAQC220

MODEL STATE INFORMATION SYSTEM
WATER QUALITY COMPLIANCE SUBSYSTEM

WAQC.130

PROCESSING OPTIONS FOR JOB _____

CARD ID: P A O C (1-4)

CURRENT DATE (M D Y): 0 1 0 1 8 4 (5-10)

	PURGE DATE (M D Y)	CONTAMINANT GROUP
0	12/31/82 (14-19)	20
1	(21-26)	27
2	(28-33)	34
3	12/31/78 (35-40)	41
4	(42-47)	48

PURGE REPORT PROCESSING OPTION: [Y] (49)

Y = YES, PRINT ALL PURGED RECORDS
N = NO, DO NOT PRODUCE PURGED REPORT

PREPARED BY J. Smith DATE 12/31/83

APPROVED BY _____ DATE __/__/__

PWSI090

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWSI.10S

PROCESSING OPTIONS FOR JOB _____

CARD ID	DATE (M O Y)	DATE (M O Y)	
P A O C	0 1 0 1 7 9	1 2 3 1 7 7	DATE USED TO DETERMINE WHICH RECORDS ARE TO BE PURGED
1-4	5-10	14-19	

PUBLIC HISTORY REPORT OPTION: [Y] (20)

SELECT THE CODE FOR THE TYPE OF HISTORY REPORT TO BE PRINTED:
- Y = PRODUCE PUBLIC HISTORY FILE PURGE REPORT
- N = DO NOT PRODUCE THE PUBLIC HISTORY FILE PURGE REPORT

30

PREPARED BY J. Smith DATE 12/31/78

APPROVED BY _____ DATE __/__/__

IV.1.S8

PWSI010

MODEL STATE INFORMATION SYSTEM

PWSI.111

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PROCESSING OPTIONS FOR JOB _____

CARD ID	DATE M	DATE D	DATE Y
PAOC	09	07	77
1-4	5-10		

STANDARD ERROR PROCESSING OPTIONS:

[N] 11 — Y = YES, CREATE A SPECIAL FILE OF ERROR RECORDS; N = NO

[Y] 12 — Y = YES, PRINT ONLY THE DATA ELEMENTS FIELDS WHICH ARE IN ERROR - NOT THE ENTIRE RECORD; N = NO

REPORT OPTIONS:

[3] 14 — NEW PWS RECORDS (ALL OPTIONS ALLOWED)

[3] 15 — INCOMPLETE PWS RECORDS (OPTIONS 2 OR 3 ONLY)

[2] 16 — PWS STATUS REQUESTS (OPTIONS 2 OR 3 ONLY)

[1] 17 — UNSUCCESSFUL UPDATE RECORDS (ALL OPTIONS ALLOWED)

OPTIONS FOR COLUMNS 14 - 17:
1 = DO NOT PRODUCE A REPORT
2 = PRODUCE REPORT ON PRE-PRINTED STATUS AND ENTRY FORM (TURNAROUND DOCUMENT)
3 = PRODUCE COMPREHENSIVE REPORT

PREPARED BY J. Smith DATE 9/2/77

APPROVED BY _____ DATE __/__/__

PWSI020

MODEL STATE INFORMATION SYSTEM

PWSI.113

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PROCESSING OPTIONS FOR JOB _____

CARD ID: P A O C (1-4)

DATE: M 0 Y — 0 7 / 0 7 7 (5-10)

SELECT THE CODE FOR THE TYPE OF REPORT TO BE PRINTED:

PWSI030: [N] (14)
Y = YES, PRODUCE CONDENSED REPORT
N = NO REPORT IS PRODUCED

PWSI040: [N] (15)
Y = YES, PRODUCE PRODUCTION AND CAPACITY DATA REPORT
N = NO REPORT IS PRODUCED

PWSI050: [Y] (16)
Y = YES, PRODUCE STATE DISCRETIONARY DATA REPORT
N = NO REPORT IS PRODUCED

PWSI060: [1] (17)
1 = NO REPORT IS PRODUCED
2 = YES, PRODUCE THE STATUS AND ENTRY FORM (TURNAROUND DOCUMENT)
3 = YES, PRODUCE COMPREHENSIVE REPORT

PREPARED BY J Smith DATE 9/9/77

APPROVED BY _____ DATE __/__/__

IV.1.S10

SAVY010

MODEL STATE INFORMATION SYSTEM
SANITARY SURVEY SUBSYSTEM

SAVY.100

PROCESSING OPTIONS FOR JOB _____

CARD ID: P R O C (1-4)

DATE (M D Y): 0 6 2 3 7 7 (5-10)

SELECTION WEIGHTS

TYPE OF WATER SUPPLY: 0 0 (11-12)

POPULATION SERVED: 0 9 (13-14)

HISTORY OF PAST VIOLATIONS: 0 0 (15-16)

DATE OF LAST SANITARY SURVEY: 0 0 (17-18)

TYPE OF SOURCE WATER: 0 1 (19-20)

PRIORITY REPORT	SCHEDULE REPORT	PRIORITY OPTION	SURVEYING CAPACITY
Y (21)	Y (22)	1 (23)	(24-27)

REGION/DISTRICT

28-29 30-31 32-33 34-35 36-37 38-39

40-41 42-43 44-45 46-47

SURVEYING PERIOD

FROM (M D Y): 0 6 2 4 7 7 (48-53)

TO (M D Y): 1 2 3 1 7 7 (54-59)

PWF REPORT OPTION: 3 (60)

1 = DO NOT PRODUCE A REPORT
2 = PRODUCE A REPORT ON THE PREPRINTED STATUS AND ENTRY FORM (TURNAROUND DOCUMENT)
3 = PRODUCE A COMPREHENSIVE REPORT

PREPARED BY J. Smith DATE 6/23/77

APPROVED BY _____ DATE __/__/__

PROC Error Messages
- Two PROC Records Supplied
- No Processing Option cards were provided
- PROC type not SEL1, SEL2, SORT, or PROC
- PROC card contains an invalid date

Error Reports
- Data Entry
- Processing Options
- Warning

SORT Input Form
- Presupposes Output
- SORT Sequence
- Limitations

PWSI030,040,
050,060,
070,080

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWSI.100

SORT OPTIONS FOR JOB _____

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
SORT 1-4	01 5-6	PW-PL-TYPE 7-16	A 17	A=ASCENDING D=DESCENDING
	02 18-19	PW-PL-CYCL 20-29	A 30	A=ASCENDING D=DESCENDING
	03 31-32	PW-PL-STCA 33-42	D 43	A=ASCENDING D=DESCENDING
	04 44-45	PW-PL-MAXP 46-55	D 56	A=ASCENDING D=DESCENDING
	05 57-58	PW-ID 59-68	A 69	A=ASCENDING D=DESCENDING

PREPARED BY J. Smith DATE 2/2/77

APPROVED BY _____ DATE __/__/__

SORT Error Messages

- Maximum Sort—Key size has been exceeded
- Sort Sequence field not numeric
- Two sort fields have the same sequence number
- Sort Sequence number greater than 10
- Sort Option mnemonic name is invalid
- Sort mode is not ascending or descending
- Non-consecutive sort sequence values

SEL Input Forms

- Select Records
- Determine Report Usefulness
- Work Together
- Selection Process

Selection Process

- SIMPLE
- AND
- OR

SEL1 Error Messages

- Invalid file ID in SEL1 record
- Two SEL1 records have the same logic ID
- Mnemonic name in SEL1 record is invalid
- SEL1 value too long for specified mnemonic
- No SEL1 option card was provided
- Logic ID greater than 35 in SEL1 record
- SEL1 update-date value is not a valid date
- SEL1 record-ID value not numeric
- SEL1 catalog-number value not numeric

Study Problem

Request that a report of all changes to the Variances and Exemptions File (VEF) be produced on 1/2/78.
Sort the information by the most current change.
If more than one change was recorded on the same day, sort by the previous update date.

SEL2 Error Messages

- SEL2 operand has no matching SEL1 record
- No SEL2 option card was provided
- More than 35 SEL2 records were provided
- SEL2 record has invalid relational symbol

MSI5040

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

MSI9.10S

STANDARD HISTORY FILE SELECTION

PROCESSING OPTIONS FOR JOB _____

CARD ID	DATE M	DATE D	DATE Y
PAOC	01	02	78
1-4		5-10	

PREPARED BY J Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

MSIS040

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

MSIS.108

STANDARD HISTORY FILE SELECTION

SORT OPTIONS FOR JOB _____

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
SORT (1-4)	01 (5-6)	SH-CUR-UP (7-16)	D (17)	A=ASCENDING D=DESCENDING
	02 (18-19)	SH-LST-UP (20-29)	D (30)	A=ASCENDING D=DESCENDING
	(31-32)	(33-42)	(43)	A=ASCENDING D=DESCENDING
	(44-45)	(46-55)	(56)	A=ASCENDING D=DESCENDING
	(57-58)	(59-68)	(69)	A=ASCENDING D=DESCENDING

PREPARED BY J Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

MSIS040

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

MSIS.108

STANDARD HISTORY FILE

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
SELI	SH-FILE-ID	VE	Ø1
1-4	5-14	15-29	30-31
DUP 1 - 4			

PREPARED BY J Smith DATE 11/2/78

APPROVED BY _____ DATE __/__/__

SIS040

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

MSIS.107

STANDARD HISTORY FILE

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID: S E L 2 (1-4)

DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
01	EQ (5-6)	02	(7-8)	03	(9-10)	04	(11-12)
05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
33	(69-70)	34	(71-72)	35	(73-74)		

PREPARED BY J Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

Study Problem

Request a condensed report of variances and exemptions that were in effect during any part of 1977 on January 2, 1978.
Sort the report by PWS-ID.
If a PWS has both variance(s) and exemption(s) sort variance(s) first then exemption(s).
If a PWS has more than one variance and/or exemption sort them by VE-ID

VAEX040

MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

VAEX.104

PROCESSING OPTIONS FOR JOB_____

CARD ID	DATE (M D Y)		
PROC (1-4)	01 02 78 (5-10)	Y (14)	Y = YES, N = NO — PRODUCE CONDENSED REPORT
		W (15)	Y = YES, N = NO — PRODUCE CASE HISTORY REPORT

PREPARED BY J. Smith DATE 11 21 78

APPROVED BY _____ DATE _ / _ / __

VAEX040

MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

VAEX.103

SORT OPTIONS FOR JOB _____

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
SORT (1-4)	01 (5-6)	VE-PWS-ID (7-16)	A (17)	A=ASCENDING D=DESCENDING
	02 (18-19)	VE-TYPE (20-29)	D (30)	A=ASCENDING D=DESCENDING
	03 (31-32)	VE-ID (33-42)	A (43)	A=ASCENDING D=DESCENDING
	(44-45)	(46-55)	(56)	A=ASCENDING D=DESCENDING
	(57-58)	(59-68)	(69)	A=ASCENDING D=DESCENDING

PREPARED BY J Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

VAEX040

MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

VAEX.105

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID (1-4)	DATA ELEMENT MNEMONIC NAME (5-14)	DATA ELEMENT COMPARATIVE VALUE (15-29)	DATA ELEMENT LOGIC ID NO. (30-31)
SEL1	VE-EXP-DT	123176	01
DUP 1 - 4	VE-EFF-DT	010178	02

PREPARED BY J. Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

Will we get all variances and exemptions in effect during 1977?

VAEX040

MODEL STATE INFORMATION SYSTEM
VARIANCES AND EXEMPTIONS SUBSYSTEM

VAEX.106

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS(EMPTY)

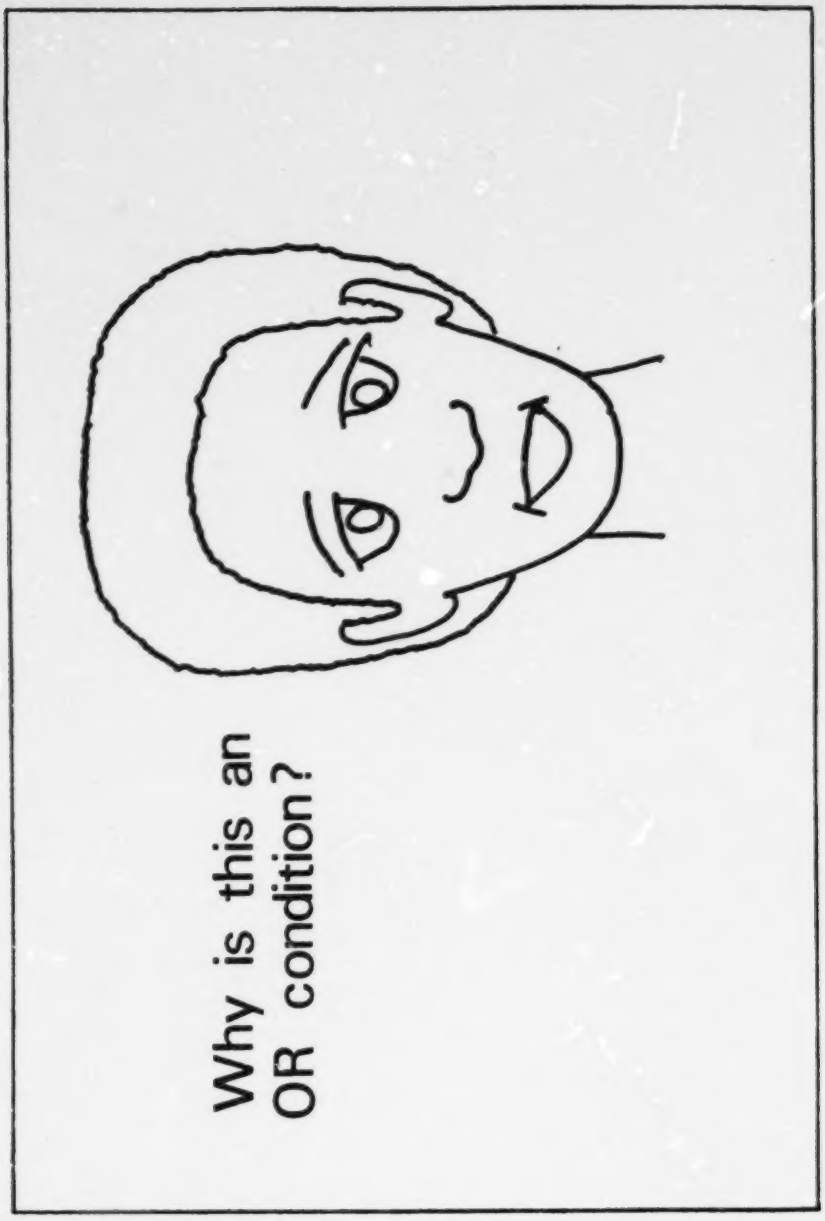
CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELZ (1-4)	01	GT (5-6)	02	LT (7-8)	03	(9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

PREPARED BY J Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

Study Problem

Generate enforcement action case histories for those actions whose legal status is either "not a legal action" or "initial action pending." Arrange the report in ascending order by the PWS-ID.


Why is this an
OR condition?

ENAC020

MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

ENAC.105

PROCESSING OPTIONS FOR JOB _____

CARD ID	DATE M	DATE D	DATE Y
PROC	01	02	78
1-4	5-10		

[N] 14 Y = YES, N = NO — PRODUCE CONDENSED REPORT

[Y] 15 Y = YES, N = NO — PRODUCE CASE HISTORY REPORT

50

PREPARED BY J Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

IV.1.S28

ENAC020

MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

ENAC.106

SORT OPTIONS FOR JOB _____

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
S O R T 1-4	0 1 5-6	E A - P M - I D 7-16	A 17	A=ASCENDING D=DESCENDING
	18-19	20-29	30	A=ASCENDING D=DESCENDING
	31-32	33-42	43	A=ASCENDING D=DESCENDING
	44-45	46-55	56	A=ASCENDING D=DESCENDING
	57-58	59-68	69	A=ASCENDING D=DESCENDING

PREPARED BY J. Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

ENAC020

MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

ENAC.107

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID (1-4)	DATA ELEMENT MNEMONIC NAME (5-14)	DATA ELEMENT COMPARATIVE VALUE (15-29)	DATA ELEMENT LOGIC ID NO. (30-31)
SEL1	EA-LEGALST	L	01
DUP 1 - 4	EA-LEGALST	I	02

PREPARED BY J Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

ENAC020

MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

ENAC.108

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN EQ = EQUAL GT = GREATER THAN NL = NOT LESS THAN NG = NOT GREATER THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SEL2 (1-4)	01	EQ (5-6)	02	(7-8)	03	(9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

PREPARED BY J. Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

ENAC020

MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

ENAC.108

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN, EQ = EQUAL, GT = GREATER THAN, NL = NOT LESS THAN, NG = NOT GREATER THAN, NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELL2 (1-4)	01	(5-6)	02	EQ (7-8)	03	(9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

PREPARED BY J. Smith DATE 1/2/78

APPROVED BY _____ DATE __/__/__

Study Problem

Create one mailing label
for each PWS operator whose
certification in class "0"
or "6" will expire before
July 1, 1978.

OPER020

MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

OPER.102

PROCESSING OPTIONS FOR JOB _____

CARD ID: P A O C (1-4)

DATE (M D Y): 0 5 0 1 7 8 (5-10)

REPORT OPTIONS:

[N] 14 — Y = YES, N = NO — PRODUCE CERTIFIED OPERATORS REPORT

[N] 15 — Y = YES, N = NO — PRODUCE MAILING DISTRIBUTION REPORT

[Y] 16 — Y = YES, N = NO — PRODUCE MAILING LABELS

[1] 17 — NUMBER OF LABELS

PREPARED BY J Smith DATE 5/1/78

APPROVED BY _____ DATE __/__/__

OPER020

MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

OPER.103

SORT OPTIONS FOR JOB _____

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
SORT 1-4	01 5-6	OM-ADS-ZIP 7-16	A 17	A=ASCENDING D=DESCENDING
	18-19	20-29	30	A=ASCENDING D=DESCENDING
	31-32	33-42	43	A=ASCENDING D=DESCENDING
	44-45	46-55	56	A=ASCENDING D=DESCENDING
	57-58	59-68	69	A=ASCENDING D=DESCENDING

PREPARED BY J Smith DATE 5/1/78

APPROVED BY _____ DATE __/__/__

OPER020

MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

OPER.104

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID (1-4)	DATA ELEMENT MNEMONIC NAME (5-14)	DATA ELEMENT COMPARATIVE VALUE (15-29)	DATA ELEMENT LOGIC ID NO. (30-31)
SELL	OM-OP-CLS	0	01
DUP 1 - 4	OM-RWL-DT	07/01/78	02
	OM-OP-CLS	6	03

PREPARED BY J Smith DATE 5/1/78

APPROVED BY _____ DATE / /

How are the conditions related?

OPER020

MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

OPER.105

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SEL2 (1-4)	01	EQ (5-6)	02	LT (7-8)	03	(9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

09

PREPARED BY J. Smith DATE 5/1/78

APPROVED BY _____ DATE __/__/__

IV.1.S38

OPER020

MODEL STATE INFORMATION SYSTEM
OPERATOR AND MAILING SUBSYSTEM

OPER.105

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN, EQ = EQUAL, GT = GREATER THAN, NL = NOT LESS THAN, NG = NOT GREATER THAN, NX = NOT EXISTS (EMPTY)

CARD ID: S E L 2 (1-4)

DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
01	5-6	02	L T 7-8	03	E Q 9-10	04	11-12
05	13-14	06	15-16	07	17-18	08	19-20
09	21-22	10	23-24	11	25-26	12	27-28
13	29-30	14	31-32	15	33-34	16	35-36
17	37-38	18	39-40	19	41-42	20	43-44
21	45-46	22	47-48	23	49-50	24	51-52
25	53-54	26	55-56	27	57-58	28	59-60
29	61-62	30	63-64	31	65-66	32	67-68
33	69-70	34	71-72	35	73-74		

PREPARED BY J Smith DATE 5/1/78

APPROVED BY _____ DATE __/__/__

EXERCISES

PROC and SORT

PWSI.113

1. State the purpose of the entries in positions 1-4 _____

_____

_____

2. State the purpose of entries in positions 5-10 _____

_____

3. Circle the best valid entry.

60177 121577 006178 MY1078

4. State the purpose of the entries in positions 14-17 _____

_____

_____

5. Circle the group of best valid entries.

Y	Y	N	N
Y	Y	N	Y
Y	N	L	N
2	4	1	0

PWSI.100

1. State the purpose of the entries in positions 1-4 _____

_____

_____

2. State the purpose of entries in positions 5-6, 18-19, 31-32, 44-45, and 57-58. _____

_____

3. Circle the group of best valid entries.

1	01	01	05
2	02	02	04
3	03	03	03
4	03	04	02
5	06	05	01

PWSI.100 (con't)

4. State the purpose of entries in positions 7-16, 20-29, 33-42, 46-55, and 59-68. _____

_____

_____

5. Circle the group of best valid entries.

PWF-PLANT-TYPE	SH-FILE-ID	1	PW-PL-TYPE
PWF-PLANT-CYCLE	SH-REC-ID	2	PW-PL-CYCL
PWF-PLANT-STORAGE	SH-LST-UP	3	PW-PL-STCA
PWF-PLANT-PRODUCTION	SH-CUR-UP	4	PW-PL-MAXP
PWS-IDENTIFICATION	SH-OLD-VAL	5	PW-ID

6. State the purpose of entries in positions 17, 30, 43, 56, 69. _____

_____

7. Circle the group of best valid entries.

A	1	A	E
B	2	A	D
C	3	D	C
D	4	D	B
E	5	A	A

PWSI020

MODEL STATE INFORMATION SYSTEM

PWSI.113

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PROCESSING OPTIONS FOR JOB _____

CARD ID: P A O C (1-4)

DATE: M O Y (5-10)

SELECT THE CODE FOR THE TYPE OF REPORT TO BE PRINTED:

PWSI030: [ ] (14)
Y = YES, PRODUCE CONDENSED REPORT
N = NO REPORT IS PRODUCED

PWSI040: [ ] (15)
Y = YES, PRODUCE PRODUCTION AND CAPACITY DATA REPORT
N = NO REPORT IS PRODUCED

PWSI050: [ ] (16)
Y = YES, PRODUCE STATE DISCRETIONARY DATA REPORT
N = NO REPORT IS PRODUCED

PWSI060: [ ] (17)
1 = NO REPORT IS PRODUCED
2 = YES, PRODUCE THE STATUS AND ENTRY FORM (TURNAROUND DOCUMENT)
3 = YES, PRODUCE COMPREHENSIVE REPORT

PREPARED BY _____ DATE __/__/__

APPROVED BY _____ DATE __/__/__

PWSI030,040,
050,060,
070,080

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWSI.100

SORT OPTIONS FOR JOB _____

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
[S][O][R][T] 1-4	[ ][ ] 5-6	[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] 7-16	[ ] 17	A=ASCENDING D=DESCENDING
	[ ][ ] 18-19	[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] 20-29	[ ] 30	A=ASCENDING D=DESCENDING
	[ ][ ] 31-32	[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] 33-42	[ ] 43	A=ASCENDING D=DESCENDING
	[ ][ ] 44-45	[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] 46-55	[ ] 56	A=ASCENDING D=DESCENDING
	[ ][ ] 57-58	[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] 59-68	[ ] 69	A=ASCENDING D=DESCENDING

PREPARED BY _____ DATE ___/___/___

APPROVED BY _____ DATE ___/___/___

SEL1 and SEL2

PWSI.107

1. State the purpose of the entries in positions 1-4.

_____

_____

2. State the purpose of entries in positions 5-14.

_____

_____

3. Circle the best valid entry.

PW-ID SH-FILE-ID PWS-ID CODE-ID

4. State the purpose of entries in positions 15-29.

_____

_____

5. Circle the best valid entry.

PWS-ID 0000000 GT 12345678910111213

6. State the purpose of entries in positions 30-31.

_____

_____

7. Circle the best valid entry

10 GT 1 01

8. What is the purpose of the remaining lines on the form? _____

_____

_____

PWSI.108

1. State the purpose of the entry in positions 1-4.

_____

_____

2. State the purpose of the "Data Element Logic ID No.". _____

_____

3. State the purpose of entries in positions 5-6.

_____

_____

4. Circle the best valid entry.

EQ GR < 01

5. What is the purpose of the remaining positions on the form? _____

_____

_____

PWS1020,080

MODEL STATE INFORMATION SYSTEM

PWS1.107

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
S E L 1			
1-4	5-14	15-29	30-31
DUP 1 - 4			
.			
.			
.			
.			
.			
.			
.			
.			
.			
.			
.			
.			

PREPARED BY _____ DATE __/__/__

APPROVED BY _____ DATE __/__/__

NV.1.E2

PWSI020.080

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWSI.108

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELL2 (1-4)	01	5-6	02	7-8	03	9-10	04	11-12
	05	13-14	06	15-16	07	17-18	08	19-20
	09	21-22	10	23-24	11	25-26	12	27-28
	13	29-30	14	31-32	15	33-34	16	35-36
	17	37-38	18	39-40	19	41-42	20	43-44
	21	45-46	22	47-48	23	49-50	24	51-52
	25	53-54	26	55-56	27	57-58	28	59-60
	29	61-62	30	63-64	31	65-66	32	67-68
	33	69-70	34	71-72	35	73-74		

PREPARED BY _____ DATE __/__/__

APPROVED BY _____ DATE __/__/__

IV.1.E2

POST-TEST

SELECTION PROCESS

Name:_____ (5-30) Postal Code_____ (31-2) Date____/____/____ Month Day Year (33-8)

1. Match the types of input forms with their function:
(A given form may be matched with more than one function)

Form	Function
a. Processing option	(39)____ enter sample and analysis data
b. Table creation	(40)____ enable the user to specify needed reports
c. Record creation & maintenance	(41)____ enter data into MSIS tables
d. Water quality transactions	(42)____ enable the user to specify a needed PWS listing
	(43)____ enter PWS-related data to a file

2. Circle T (True) or F (False) for the following statements:

T F (44) "PROC" is a processing option input form used both to initiate a program and to specify the subsystem to be run.

T F (45) "SORT" is a processing option input form used to specify a desired sequence of records for output.

T F (46) "SEL1" or "SEL2" is the processing option input form used to select records from MSIS files.

T F (47) Record creation and maintenance forms are used to enter sample and analysis data.

T F (48) The Sort Sequence numbers must be entered on the "SORT" form in ascending consecutive sequence.

T F (49) The Sort Mode must be specified as either an ascending or a descending order.

T F (50) The Data Element Logic ID number on "SEL1" and "SEL2" is used only to associate the information on the two forms.

T F (51) The Logic ID's entered on "SEL1" must be in ascending consecutive sequence.

T F (8) The Sanitary Survey PROC form is used to enter the results of a sanitary survey.

T F (9) The Sanitary Survey SORT form is required when scheduling sanitary surveys.

T F (10) The "and" conditional statement means a record will be selected if it fulfills all the requirements specified.

T F (11) The "and" and "or" conditional statements may be entered simultaneously to select records.

3. Circle all of the following that are true:

(12) a. the maximum number of SEL1 entries is 35.
(13) b. the maximum number of SEL2 entries is 35.
(14) c. the maximum number of SEL2's that may be entered in one selection run is 35.

4. Circle all of the following statements which describe what the PROC form can specify.

(15) a. the date of the output
(16) b. the period covered by the output
(17) c. the criteria for selecting records for output
(18) d. report options
(19) e. standard error processing options
(20) f. which State the output is from
(21) g. the order of the output
(22) h. the purge date of a file

5. Circle all of the following which must be specified on the SORT form to perform its function.

(23) a. ascending or descending order
(24) b. the value of the data element to be used
(25) c. the data element to be used
(26) d. the sequence of the data elements to be used
(27) e. relation symbols

6. Circle all of the following which must be specified on the SEL1 form to perform its function.

(28) a. ascending or descending order
(29) b. the value of the data element to be used

(30) c. the data elements to be used
(31) d. the sequence of the data elements to be used
(32) e. relation symbols

7. Circle <u>all</u> of the following which must be specified on the SEL2 form to perform its function.

(33) a. ascending or descending order
(34) b. the value of the data element to be used.
(35) c. the data elements to be used
(36) d. the sequence of the data elements to be used
(37) e. relation symbols

8. Rate your current level of knowledge about MSIS. (Circle one)

(38) None (39) A little (40) Some (41) Quite a bit
(42) Great deal

GLOSSARY

Terms are included in this glossary only if their meanings differ from those found in a standard English language dictionary.

Analysis:

The separation of any abstract entity or material into its constituant elements, such as chemical-intentionally produced decomposition or separation of materials into their ingredients to find their kind or quality.

Analysis Method:

The method or technique utilized to obtain analysis results.

Analytical Techniques:

The methods used to determine the components of a substance, especially raw water.

Batch Processing:

A procedure in which a number of transactions, for example on keypunched cards, are accumulated before being processed together.

Check Sampling:

The act of acquiring additional quantities of water for analysis over and above the regular samples due to the suspicion of violating maximum contaminant levels.

Code:

A system used for brevity of communication in which arbitrarily chosen words, letters, or symbols are assigned definite meanings.

Computer:

A machine which accepts input data, processes it, and gives output data.

Computer Program:

A sequence of computer-readable instructions used in conjunction with appropriate data to perform specified logical tasks.

Correction:

Additions, subtractions, or changes to a computer file.

Course:

All content taught in one individual MSIS training program volume. A course is subdivided into units.

Data:

Raw facts or statistics which alone have little or no meaning, but as a group allow some meaningful relationships to be drawn.

Data Element:

An identifiable item of information within a record. See the Data Element Dictionary for all data elements used in MSIS.

Data Processing:

The act of manipulating information to obtain a desired result, especially with the use of a computer.

Economical:

Of or pertaining to the financial reasons for granting variances and exemptions.

Enforcement:

The act of creating and maintaining compliance using coercive methods.

Enforcement Action:

An act intended to generate compliance.

Exemption:

Authorized waiver of an MCL requirement due to compelling factors, such as need for a PWS to design and build effective treatment facilities.

Field:

See data element.

File:

A collection of records systematically arranged to facilitate quick reference; may be stored on magnetic tape or magnetic disc.

Goal:

A general achievement toward which effort is directed.

Gross Alpha:

A group of substances which emit Alpha particle radiation.

Gross Beta:

A group of substances which emit Beta particle radiation.

Hardware:

The physical equipment in a data processing system (contrasted with software).

Information:

Data that has been processed to obtain specific results which increase knowledge of the recipient and is used as the basis for decision making.

Inorganic:

Of or pertaining to substances that are not hydrocarbons or their derivatives.

Input:

Information which is specially prepared for acceptance by computer programs. Usually written down on special forms, then put into machine-readable form by, for example, keypunching.

Integrity:

Presumed reliability of data.

Internal:

Data processing occurring within the computer automatically according to instructions from computer programs.

Inventory:

A detailed, descriptive list, for example, of Public Water Systems.

Magnetic Disc:

A device which stores data on the magnetizable surfaces of one or more rotating discs, which look like a stack of phonograph records.

Magnetic tape:

A device which stores data on the magnetizable surface of a long strip of tape (the tape is typically 1 inch wide and 2400 feet long).

Maintain:

Actions taken to ensure up-to-date computer files.

Management Information System:

An organized method of maintaining facts pertinent to the governing of the operations of an organization.

Model State Information System:

(MSIS) a batch computer system designed to (1) maintain records on public water systems and the quality of the water they supply, and (2) prepare reports.

Monitor:

The acts of (1) a PWS observing and checking water quality or (2) a State observing and checking PWSs.

National Inventory File:

A computerized list of many public water systems in the United States; previously used to monitor water quality.

Objective:

A specific achievement that efforts are intended to attain.

Online Processing:

A procedure for inputting data computer whenever needed for immediate data processing, often by typewriter terminal.

Operator:

One who runs a public water system.

Organic:

Of or pertaining to substances that are hydrocarbons or their derivatives.

Output:

Any information passed from the computer.

Primacy:

Primary enforcement responsibility for carrying out the Safe Drinking Water Act of 1974.

Public Water System (PWS):

A set of components for the provision of piped water to persons for human consumption, if such facility has at least fifteen service connections or regularly serves at least twenty-five individuals 60 or more days per year.

Purge:

To remove from a computer those items no longer desired.

Raw Water:

Water at the source before any treatment.

Record:

A logical group of data elements.

Regulations:

Rules created by EPA within the guidelines established by the SDWA and having the same authority.

Report:

Information formatted by the computer in either human-readable form (such as a printed report) or machine-readable form (such as a magnetic tape).

Sample:

A portion of the whole to represent the whole, especially water.

Sanitary Survey:

An on-site review of the water source, facilities, equipment, operation, and maintenance of a public water system for the purpose of evaluating the adequacy of such source for producing and distributing safe drinking water.

Selection Process:

The method used by MSIS for selecting information from a computer file for use in a report. Many different criteria can be used in the selection of the data.

Software:

The computer programs required for the computer to work.

Subsystem:

A subset of the MSIS computer system. There are nine MSIS subsystems.

System:

A method or methods of accomplishing a function or functions, especially with a computer.

Table:

A computer file of brief information usually set up in logical relationships to permit quick access, often on magnetic disc.

Turnaround Document:

A form containing computer-printed information which needs additional information written on it; called "turnaround" since it is both an output and an input.

Unit:

A subset of teaching material within a course.

Variance:

Authorized deviation from an applicable national drinking water regulation because characteristics of the raw water source cannot be corrected by available means.

List of Abbreviations

Abbreviation	Meaning
BIP	Background Informational Package
CVT	Code Value Table
DET	Data Element Table
DVF	Deviations File
EAF	Enforcement Actions File
EMT	Error Message Table
ENAC	Enforcement Actions Subsystem
EPA	Environmental Protection Agency
FEDR	Federal Reporting Subsystem
LBT	Laboratory Table
MCL	Maximum Contaminant Level
MSIS	Model State Information System; also MSIS Standard Processing Subsystem
NIF	National Inventory File
NIPDWR	National Interim Primary Drinking Water Regulations
OMF	Operator and Mailing File
OPER	Operator and Mailing Subsystem
OWS	Office of Water Supply
PSF	Periodic Sample and Analysis File
PWF	Public Water System File
PWS	Public Water System
PWSI	Public Water System Inventory Subsystem
PWT	Public Water System Table
REGS	Regulations Subsystem

RGF	Regulations File
SAF	Sample and Analysis File
SDWA	Safe Drinking Water Act
SHF	MSIS Standard History File
SRVY	Sanitary Survey Subsystem
VAEX	Variances and Exemptions Subsystem
VEF	Variances and Exemptions File
VIF	Violations File
WAQC	Water Quality Compliance Subsystem

EXTRACTS FROM

MSIS DOCUMENTS

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
SORT Options for Job	WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	LEGEND: A=Alpha Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			At top of form enter the job	
			identification as assigned by	
			computer operations or scheduling.	
1	4	Card ID	Represents the Card Identifier for	
			Sort Processing Options.	
			Preprinted on the form as "SORT".	
5	6	Sort	Enter a two-digit number indicating	N
		Sequence	the priority of the Data Element	
			specified in Columns 7-16 in deter-	
			mining the sort of output records or	
			reports. The lowest number deter-	
			mines the first data element to be	
			used in sorting records. The second	
			lowest number determines the next	
			data element to be used in sorting	
			records and so on. Start with Sort	
			Sequence of '01' and continue with	
			'02', '03' in sequence as needed.	

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
SORT Options for Job	WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
7	16	Mnemonic Name of Data Element	Enter the Mnemonic Name of the Data Element to be used as a sort field.	A/N,LJ
17	17	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence for the Data Element specified in Columns 7-16. Ascending means that smaller or lower values will be sorted first. Example: 1,2,3,4 or A,B,C. Descending will cause the reverse to occur. Example: Z,Y,X,W.	A
18	19	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 20-29 in determining the sort of output records or reports.	N

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
SORT Options for Job	WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede RJ=Right Justify Zero LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
20	29	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ
30	30	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 20-29.	A
31	32	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 33-42 in determining the sort of output records or reports.	N
33	42	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
SORT Options for Job	WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Preced RJ=Right Justify LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
43	43	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 33-42.	A
44	45	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 46-55 in determining the sort of output records or reports.	N
46	55	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ
56	56	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 46-55.	A

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
SORT Options for Job	WAQC.104
PURPOSE: To determine the sequence in which output files from programs WAQC010,040,041, 050,051,060,061,070,080,090,110,111,112,113 will be sorted.	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede RJ=Right Justify Zero LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
57	58	Sort Sequence	Enter a two-digit number indicating the priority of the Data Element specified in Columns 59-68 in determining the sort of output records or reports.	N
59	68	Mnemonic Name of Data Element	Enter the Mnemonic Name of a Data Element to be used as a sort field.	A/N,LJ
69	69	Sort Mode	Enter 'A' for an ascending sequence or 'D' for a descending sequence of the Data Element specified in Columns 59-68.	A

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Selection Form - Definition of Data Elements	EXHIBIT: WAQC.116
PURPOSE: To determine the records to be selected from the Sample Analysis File (SAF) or Violations File (VIF).	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left JJustify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
1	4	Card ID	Represents the Card Identifier for the data element selection form. Preprinted on the form as "SEL1".	
5	14	Data Element Mnemonic Name	Enter the mnemonic name of the data element which will be used to determine record selection. Must be entered.	A/N,LJ
15	29	Data Element Comparative Value	Enter the value for the previously specified data element which will be used to determine record selection.	A/N,LJ
30	31	Data Element Logic ID Number	Enter a two digit number. This number must be unique for each SEL1 record. Valid numbers are 1-35. The number associates the SEL1 record with the logic defined on the SEL2 record.	N
		NOTE: For detailed in	further explanation review the examples the Users Manual.	

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Selection Form - Definition of Logic for Selection	EXHIBIT: WAQC 117
PURPOSE: To determine the selection logic to be used for the Sample Analysis File (SAF) or Violations File (VIF).	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede RJ=Right Justify Zero LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
1	4	Card ID	Represents the Card Identifier for Logic Selection. Preprinted on the form as "SEL2".	
5	6	Relation Symbol	Enter one of the valid Relation Symbols defined on the input form. This symbol is a logical operator and defines the desired relationship between the Data Element and the Comparative Value defined on the Data Element Definition Form (SEL1). The Data Element Logic ID number associates the relation symbols to the proper Data Element. Only enter if there is a corresponding "SEL1" entry which has been defined.	A
7	74		Same as Columns 5-6.	A
		NOTE: For detailed in	further explanation review the examples the Users Manual.	

PAGE 1 OF 1

VII. Standard Error Messages for Processing Options

Any program which uses processing options records may produce any of the following messages:

A. Standard Error Messages & Remedial Actions for PROC Records

MESSAGE: ERROR - TWO PROC RECORDS SUPPLIED
REMEDIAL ACTION: return both records to data entry and re-enter the Processing Options record which is correct.

MESSAGE: ERROR - NO PROCESSING OPTION RECORDS WERE PROVIDED
REMEDIAL ACTION: obtain Processing Options from data entry.

MESSAGE: ERROR - PROC TYPE NOT VALID IN OPTION RECORD
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - PROC RECORD CONTAINS AN INVALID DATE
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

B. Standard Error Messages & Remedial Actions for SORT Records

MESSAGE: ERROR - MAXIMUM SORT-KEY SIZE HAS BEEN EXCEEDED
REMEDIAL ACTION: return option to data entry.

MESSAGE: ERROR - SORT SEQUENCE FIELD NOT NUMERIC
REMEDIAL ACTION: check for keypunch error, if not return option to data entry.

MESSAGE: ERROR - TWO SORT FIELDS HAVE THE SAME SEQUENCE NUM
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SORT SEQUENCE NUMBER GREATER THAN MAXIMUM
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SORT OPTION MNEMONIC-NAME IS INVALID
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SORT MODE IS NOT ASCENDING OR DESCENDING
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - NONCONSECUTIVE SORT SEQUENCE VALUES
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

C. Standard Error Messages & Remedial Actions for SEL1 & SEL2 Records

MESSAGE: ERROR - INVALID FILE-ID IN SEL1 RECORD
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - TWO SEL1 RECORDS HAVE THE SAME LOGIC ID
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - MNEMONIC NAME IS SEL1 RECORD IS INVALID
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SEL1 VALUE TOO LONG FOR SPECIFIED MNEMONIC
REMEDIAL ACTION: check for keypunch error, if not return option to data entry.

MESSAGE: ERROR - NO SEL1 OPTION RECORD WAS PROVIDED
REMEDIAL ACTION: return all options to data entry.

MESSAGE: ERROR - LOGIC ID NOT 1 THRU 35 IN SEL1 RECORD
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SEL1 DATE-FIELD VALUE IS NOT A VALID DATE
REMEDIAL ACTION: check for valid six character date, if not, return option to data entry.

MESSAGE: ERROR - SEL1 CATALOGUE-NUMBER VALUE NOT NUMERIC
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MESSAGE: ERROR - SEL2 OPERAND HAS NO MATCHING SEL1 RECORD
REMEDIAL ACTION: return all options to data entry.

MESSAGE: ERROR - NO SEL2 OPTION RECORD WAS PROVIDED
REMEDIAL ACTION: return all options to data entry.

MESSAGE* ERROR - MORE THAN 35 SEL2 RECORDS WERE PROVIDED
REMEDIAL ACTION: return all options to data entry.

MESSAGE: ERROR - SEL2 RECORD HAS INVALID RELATIONAL SYMBOL
REMEDIAL ACTION: check for keypunch error, if not, return option to data entry.

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
Processing Options for Job	SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			At top of form enter the job	
			identification as assigned by	
			Computer Operations or Scheduling.	
1	4	Card ID	Represents the Card Identifier	
			for Processing Options. Preprinted	
			on the form as "PROC".	
5	10	Date	Enter the Current date. Must be	N
			entered as MMDDYY, where MM is the	
			month, DD is the day and YY is the	
			year.	
11	12	Type of	Enter the Priority Selection	N
		Water	Weight for the type of water	
		Supply	supply. Legal values are 0.0 thru	
			1.0	
13	14	Population	Enter the Priority Selection Weight	N
		Served	for the Population served.	
			Legal values are 0.0 thru 1.0	

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Processing Options for Job	EXHIBIT: SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede RJ=Right Justify Zero LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
15	16	History of Past Violations	Enter the Priority Selection Weight for Violation History. Legal Values are 0.0 thru 1.0	N
17	18	Date of Last Sanitary Survey.	Enter the Priority Selection Weight for the date of the last Sanitary Survey. Legal Values are 0.0 thru 1.0	N
19	20	Type of Source Water	Enter the Priority Selection weight for the type of Source Water. Legal Values are 0.0 thru 1.0 The sum total of the five selection weights must equal 1.0	N
21	21	Priority Report	Enter "Y" to produce the Priority Report. Enter "N" to suppress the report.	A

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
Processing Options for Job	SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY101	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede RJ=Right Justify Zero LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
22	22	Schedule Report	Enter "Y" to produce the Schedule Report. Enter "N" to suppress the report.	A
23	23	Priority Option	Enter the Code for the type of Priority Option desired. The Codes and their meanings are: 1 = The reports will cover the entire state. 2 = The reports will cover only specific regions and/or districts as specified in columns 28 - 47. 3 = The reports will distribute the number of Sanitary Surveys equally among all districts or regions in the state.	N

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
Processing Options for Job	SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	**LEGEND:** A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede RJ=Right Justify Zero LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
24	27	Surveying Capacity	Enter the number of surveys which the specified surveying authority has the capability of performing within the specified period. Enter blanks to specify an unlimited capacity.	A/N
28	47	Region/ District	Enter the specific regions and districts to be surveyed. If column 23 is not equal to "2', these fields must be blank. If column ?3 is equal to "2', one of these fields must be non-blank.	A/N
48	59	Surveying Period	Enter the period during which the Sanitary Surveys are to be scheduled. The From date and the To date must be entered in the form MMDDYY where MM is the month, DD is the day and YY is the year.	N

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
Processing Options for Job	SRVY.100
PURPOSE: To determine the Processing Options for Program SRVY010	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede with Zero RJ=Right Justify LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
60	60	PWF Report Option	Enter one of the valid PWF report options as shown on the Data Entry Form. If column 28 is equal to "N", this field must be left blank since this option pertains to those Public Water System Records that will be shown on the Schedule Report.	A/N

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
Sampling Scheduling Input Form	WAQC.124
PURPOSE: Used to determine what sample schedule output is to be produced for each Public Water System (PWS), for Program WAQC130	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0=Precede RJ=Right Justify Zero LJ=Left Justify

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
1	7	PWS-ID	Enter the Public Water System (PWS) identification Number for the PWS to be scheduled. Must be entered.	N, RJ, PRE/0
8	8	Turbidity	Enter a 'Y' if Turbidity samples are to be scheduled for this PWS. If Turbidity scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
9	9	Chemicals	Enter a 'Y' if chemical samples are to be scheduled for this PWS. If chemical scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
10	10	Bacterio-logical	Enter a 'Y' if Bacteriological samples are to be scheduled for this PWS. If Bacteriological Scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
Sampling Scheduling Input Form	WAQC.124
PURPOSE: To determine what sample schedule output is to be produced for each Public Water System (PWS), for Program WAQC130	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
11	11	Natural Radio-Nuclides	Enter a 'y' if Natural Radionuclide samples are to be scheduled for this PWS. If Natural Radionuclide scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
12	12	Man-made Radio-Nuclides	Enter a 'Y' if Man-Made Radionuclide Samples are to be scheduled for this PWS. If Man-Made Radionuclide scheduling is not desired, enter an 'N' or leave blank. If not entered, a default of 'N' is assumed.	A
13	13	Bacterio-logical Mailing Labels Option	Enter one of the following values if Mailing Labels are desired for those Bacteriological Samples Scheduled for this PWS:	A

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME:	EXHIBIT:
Sampling Scheduling Input Form	WAQC.124
PURPOSE: To determine what sample schedule output is to be produced for each Public Water System (PWS), for program WAQC130	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justiry Precede LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			S = One Label for this PWS	
			A = One Label for each Bateriological	
			Sample scheduled for the PWS	
			P = The number of Labels for this PWS,	
			specified in card column 14-15.	
			If 'P' is entered, a number between	
			01 and 99 inclusive must be entered	
			in cc 14-15.	
			If Mailing Labels are not desired,	
			enter an 'N' or leave blank. If not	
			entered, a default of 'N' is assumed.	
14	15	Bacterio-	If 'P' was entered in Card Column 13	N
		logical	and a specific number of Mailing	
		Mailing	Labels for the Bacteriological samples	
		Labels	scheduled for this PWS is desired,	
		Number	enter that number here.	
			If entered, must be within the range	
			of 01 through 99 inclusive, and card	

MODEL STATE INFORMATION SYSTEM
DATA ENTRY INSTRUCTIONS

SOURCE DOCUMENT NAME: Sampling Scheduling Input Form	EXHIBIT: WAQC.124
PURPOSE: To determine what sample schedule output is to be produced for each Public Water System (PWS), for Program WAQC130.	LEGEND: A=Alpha N=Numeric A/N=Alphanumeric PRE/0= RJ=Right Justify Preced LJ=Left Justify Zero

CARD COL. FROM	CARD COL. TO	INPUT DOCUMENT NAME	DESCRIPTION	ADDITIONAL INSTRUCTIONS
			column 13 must be 'P'. If a specific	
			number is not desired or card column	
			13 is not 'P', leave blank.	
16	16	Reschedule	Enter a'Y' if the Chemical samples	A
		Chemicals	scheduled for this PWS during the	
			latest scheduling processing are to be	
			scheduled again during this scheduling	
			job run. If rescheduling of chemical	
			samples for this PWS is not desired,	
			enter an 'N' or leave blank. If not	
			entered, a default of 'N' is assumed.	
17	17	Reschedule	Enter a 'Y' if the Natural or Man-Made	A
		Radio-	Radionuclide samples scheduled for	
		Nuclides	This PWS during the latest scheduling	
			processing are to be scheduled again	
			during this scheduling job run. If	
			rescheduling of Radionuclide samples	
			for this PWS is not desired, enter an	
			'N' or leave blank. If not entered,	
			a default of 'N' is assumed.	

III. User Defined Selection of Information

The user must have the ability to select certain types of records for examination and reporting. MSIS provides this ability in special program modules through the use of two processing options: SEL1 and SEL2. The use of these options is standard throughout MSIS, although each subsystem which allows these options has its own input forms to use. (See Exhibits and Data Entry Instructions for full details on each.)

First, it is necessary to become familiar with the SEL1 and SEL2 forms and the processing logic they represent. (See figures III.1 and III.2) The example of the SEL1 form actually represents thirteen cards, one for each line, where the SEL2 form represents only one card. They are tied together logically by the Data Element Logic ID Number, columns 30-31 in the SEL1 card, and the pre-printed numbers on the SEL2 form. A maximum of thirty-five (35) SEL1 cards are allowed, and each must have a unique Data Element Logic ID Number from 01-35. If there is any duplication, the program will not run. A maximum of thirty-five (35) SEL2 cards is also allowed. The logical relationship of the multiple SEL2 cards is what is termed an "OR" condition. The logical relationship across one SEL2 card is termed an "AND" condition. These relational conditions will be further explained as examples are given.

When filling out the SEL1 form, make sure that the Data Element Comparative Value is left justified, i.e., start with the left-most block. As a general rule, use no more blocks than the maximum length of the data element as it appears on file. There are, however, several exceptions to that rule. Dates should be entered as a six position field in the format MMDDYY where MM = month, DD = day, and YY = the last two digits of the year. Dates appear on the file as five position Julian format dates but the programs will automatically convert the format of your input date to make the comparison. Turbidity units and air temperature allow for one decimal position. Maximum contaminant levels (MCL's) allow up to 15 positions: 5 whole numbers, a decimal point and nine decimal places. The decimal should be coded as part of the value in the Comparative Value. In either case, the programs will be able to make any adjustments necessary to conform to the data which is on file. Again, it must be noted that the Logic ID Number must be unique, no two SEL1 cards can have the same number.

On the SEL2 form, use only the Relational Symbols that are defined at the heading of the form. Any other symbols will stop the run of the program.

PWS1020.080

MODEL STATE INFORMATION SYSTEM

PWS1.107

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
S E L 1			
1-4	5-14	15-29	30-31
DUP 1 - 4			
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PREPARED BY _____ DATE __/__/__

APPROVED BY _____ DATE __/__/__

Fig. III.1

PWSI020,080

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWSI.108

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 (1-4)	01	□□ 5-6	02	□□ 7-8	03	□□ 9-10	04	□□ 11-12
	05	□□ 13-14	06	□□ 15-16	07	□□ 17-18	08	□□ 19-20
	09	□□ 21-22	10	□□ 23-24	11	□□ 25-26	12	□□ 27-28
	13	□□ 29-30	14	□□ 31-32	15	□□ 33-34	16	□□ 35-36
	17	□□ 37-38	18	□□ 39-40	19	□□ 41-42	20	□□ 43-44
	21	□□ 45-46	22	□□ 47-48	23	□□ 49-50	24	□□ 51-52
	25	□□ 53-54	26	□□ 55-56	27	□□ 57-58	28	□□ 59-60
	29	□□ 61-62	30	□□ 63-64	31	□□ 65-66	32	□□ 67-68
	33	□□ 69-70	34	□□ 71-72	35	□□ 73-74		

PREPARED BY _____ DATE ___/___/___

APPROVED BY _____ DATE ___/___/___

suspension, and legal action (lawsuits). This data can then

As a simple example, look at figures III.3 and III.4. The example desires to select all community Public Water Systems (PWS's) in the Cincinnati area. The plant type is coded in the Data Element Mnemonic Name and the Comparative Value of "C" is coded. This information was found in the Data Element Dictionary. The relational logic as coded would be: select all records which have a plant type equal to "C" AND an area city equal to "CINCINNATI". Remember the AND condition occurs across the SEL2 card. Each Relation Symbol corresponds to the Logic ID Number as recorded in the SEL1 cards.

By adding another line to SEL1 as in figure III.5 and an additional SEL2 form, figure III.6, the relational logic has been altered to be: select all records which have a plant type equal to "C" AND an area city equal to "CINCINNATI" OR "TOLEDO".

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MODEL STATE INFORMATION SYSTEM

PWSI.107

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID (1-4)	DATA ELEMENT MNEMONIC NAME (5-14)	DATA ELEMENT COMPARATIVE VALUE (15-29)	DATA ELEMENT LOGIC ID NO. (30-31)
SELI	PW-PL-TYPE	C	01
DUP 1 - 4	PW-PL-ACTY	CINCINNATI	02

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Fig. III.3

PWSI020,080

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWSI.100

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2	01	E Q	02	E Q	03		04	
1-4		5-6		7-8		9-10		11-12
	05		06		07		08	
		13-14		15-16		17-18		19-20
	09		10		11		12	
		21-22		23-24		25-26		27-28
	13		14		15		16	
		29-30		31-32		33-34		35-36
	17		18		19		20	
		37-38		39-40		41-42		43-44
	21		22		23		24	
		45-46		47-48		49-50		51-52
	25		26		27		28	
		53-54		55-56		57-58		59-60
	29		30		31		32	
		61-62		63-64		65-66		67-68
	33		34		35			
		69-70		71-72		73-74		

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Fig. III.4

PWS1020.000

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

PWS1.107

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID (1-4)	DATA ELEMENT MNEMONIC NAME (5-14)	DATA ELEMENT COMPARATIVE VALUE (15-29)	DATA ELEMENT LOGIC ID NO. (30-31)
SEL1	PW-PL-TYPE	C	01
DUP 1 - 4	PW-PL-ACTY	CINCINNATI	02
	PW-PL-ACTY	TOLEDO	03

PREPARED BY _____ DATE __/__/__

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Fig. III.5

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PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN EQ = EQUAL GT = GREATER THAN NL = NOT LESS THAN NG = NOT GREATER THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SEL2 (1-4)	01	EQ (5-6)	02	(7-8)	03	EQ (9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

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Fig. III.6

It should be noted that when using the "NX" relation symbol, care should be taken when coding the Comparative Value field. If a field is considered non-existant and is an alphanumeric field, its initialized value will be blanks. So the Comparative Value should be left blank. (See figure III.7, Logic ID Number 01). Likewise, if the field is numeric, zeros should be coded in the Comparative Value. (See figure III.7, Logic ID Number 02). The type of field can be determined from the Data Element Dictionary. If the "Data Type" field contains a "A/N", that means that the field is alphanumeric. If it contains an "N", it is a numeric field. The relational logic for this example is: select all records for which the owner name is non-existant AND the last survey date is non-existant.

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SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
SELI	PW-OWNA		01
1-4	5-14	15-29	30-31
DUP 1 - 4	PW-PL-SURV	000000	02

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Fig III 7

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN, EQ = EQUAL, GT = GREATER THAN, NL = NOT LESS THAN, NG = NOT GREATER THAN, NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELL2 (1-4)	01	NX (5-6)	02	NX (7-8)	03	(9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

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Fig III.8

Now for a more complex example. First look at figures III.9 through III.12. See if you can determine what the relational logic is. Remember that an "AND" relation goes across one SEL2 card and an "OR" relation goes from one SEL2 card to the next. The relational logic is: select all records for which the PWS ID is "greater than" C000001 AND the emergency capacity is "less than" 2,000,000 gallons, OR the plant type is "equal" to "N" for non-community AND the emergency capacity is "greater than" 1,000 gallons, OR the emergency capacity is "less than" 2,000,000 gallons AND the last survey date is "less than" or previous to 010177 AND the plant type is "equal" to "N" for non-community.

There are several situations of note in this example. First, see that the emergency capacity appears twice on the SEL1 form. This is a valid situation because two different Comparative Values are being used in different logic sequences. Second, see that two of the logic ID Numbers have been used twice in different logic sequences. This too is a valid situation because of the use of the OR condition between SEL2 cards. Third, note that we have three entirely independent conditions, any of which will cause the record to be selected if the condition is met.

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PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID 1-4	DATA ELEMENT MNEMONIC NAME 5-14	DATA ELEMENT COMPARATIVE VALUE 15-29	DATA ELEMENT LOGIC ID NO. 30-31
SELI	PW-ID	0000001	01
OUP 1 - 4	PW-PL-EMER	000200000000	02
.	PW-PL-TYPE	N	03
.	PW-PL-EMER	000000100	04
.	PW-PL-SURV	010177	05
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Fig III.9

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN, EQ = EQUAL, GT = GREATER THAN, NL = NOT LESS THAN, NG = NOT GREATER THAN, NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELL 2 (1-4)	01	GT (5-6)	02	LT (7-8)	03	(9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

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Fig. III.10

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SEL2 (1-4)	01	(5-6)	02	(7-8)	03	EQ (9-10)	04	GT (11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

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Fig III.11

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELL2 1-4	01	5-6	02	LT 7-8	03	EQ 9-10	04	11-12
	05	LT 13-14	06	15-16	07	17-18	08	19-20
	09	21-22	10	23-24	11	25-26	12	27-28
	13	29-30	14	31-32	15	33-34	16	35-36
	17	37-38	18	39-40	19	41-42	20	43-44
	21	45-46	22	47-48	23	49-50	24	51-52
	25	53-54	26	55-56	27	57-58	28	59-60
	29	61-62	30	63-64	31	65-66	32	67-68
	33	69-70	34	71-72	35	73-74		

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Fig III.12

As a final example, consider the situation of selecting a range of values. Under normal circumstances, the field would be entered twice in the mnemonic name columns and an upper and lower range entered in the comparative values with the appropriate relational symbols used on the SEL2 card. However, certain problems arise when you are working with fields that have multiple occurrences within a record, such as the Variances and Exemptions Contaminant ID does within the PWP record.

First, let us group the following figures to illustrate the different situations that may arise. Group figures III.13 and III.14 as group one, figures III.13 and III.15 as group two, and III.13 and III.16 as group three. Then, let us use the following value groups for the contaminant ID fields which occur a possibility of four times in each PWP record:

Value Group One	Value Group Two	Value Group Three
3010	4000	3010
4000	4005	4005
4010	4010	4010
4020	4020	4020

Now, using the group one figures as an example, let us demonstrate what will happen with the three value groups. First, with Value Group One, the record would be selected because there is a value "equal" to 4000 AND there is a value "equal" to 4010. The record for Value Group Two would also be selected, and for the same reason. However, with Value Group Three, the record would not be selected because there is no value 4000.

Next, look at the group two figures. Here we are looking for an outside range of numbers. The record for Value Group One would be selected because there is a value "less than" 4000 AND there is a value "greater than" 4010. With Value Group Two, the record would not be selected because there is no value "less than" 4000. Using Value Group Three, the record would be selected because both conditions would be met.

Finally, look at figure group three. Here, we are looking for an inside range of numbers. And this is where our problem lies. With Value Group One, the record would be selected. But lock closer at the results. True, there are values "greater than" 4000, AND there are values "less than" 4010. But there is actually no value between 4000 and 4010. With Value Groups Two and Three, there are values that fall within the range. But the entire situation is victim to circumstance. Therefore, the results obtained when selecting a data element based on an inside range that occurs more than once is questionable.

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SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID 1-4	DATA ELEMENT MNEMONIC NAME 5-14	DATA ELEMENT COMPARATIVE VALUE 15-29	DATA ELEMENT LOGIC ID NO. 30-31
SELI	PW-VE-CTAM	4000	01
DUP 1 - 4	PW-VE-CTAM	4010	02

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Fig III.13

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATIC SYMBOL
SELL2 (1-4)	01	EQ (5-6)	02	EQ (7-8)	03	(9-10)	04	(11-12
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-2C
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68
	33	(69-70)	34	(71-72)	35	(73-74)		

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Fig. III.14

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN GT = GREATER THAN NG = NOT GREATER THAN
EQ = EQUAL NL = NOT LESS THAN NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELL 1-4	01	LT 5-6	02	GT 7-8	03	9-10	04	11-12
	05	13-14	06	15-16	07	17-18	08	19-20
	09	21-22	10	23-24	11	25-26	12	27-28
	13	29-30	14	31-32	15	33-34	16	35-36
	17	37-38	18	39-40	19	41-42	20	43-44
	21	45-46	22	47-48	23	49-50	24	51-52
	25	53-54	26	55-56	27	57-58	28	59-60
	29	61-62	30	63-64	31	65-66	32	67-68
	33	69-70	34	71-72	35	73-74		

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Fig. III.15

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SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN, GT = GREATER THAN, NG = NOT GREATER THAN
EQ = EQUAL, NL = NOT LESS THAN, NX = NOT EXISTS (EMPTY

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
SELL2 (1-4)	01	GT (5-6)	02	LT (7-8)	03	(9-10)	04	(11-12)
	05	(13-14)	06	(15-16)	07	(17-18)	08	(19-20)
	09	(21-22)	10	(23-24)	11	(25-26)	12	(27-28)
	13	(29-30)	14	(31-32)	15	(33-34)	16	(35-36)
	17	(37-38)	18	(39-40)	19	(41-42)	20	(43-44)
	21	(45-46)	22	(47-48)	23	(49-50)	24	(51-52)
	25	(53-54)	26	(55-56)	27	(57-58)	28	(59-60)
	29	(61-62)	30	(63-64)	31	(65-66)	32	(67-68)
	33	(69-70)	34	(71-72)	35	(73-74)		

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Fig. III.16

In summary, then, follow these basic rules when filling out the SEL1 and SEL2 forms:

Data Element Mnemonic Name must be spelled correctly
Refer to Data Element Dictionary or Record Description for correct spelling

Comparative Value must be left justified and not longer than the maximum data length as recorded in the Data Element Dictionary with the exception of Turbidity Units, Air Temperature, MCL's which must have their decimal points coded, and dates which will be coded as six digits

Data Element Logic ID Number must be unique

Use only the six relation symbols as defined at the heading of the SEL2 form

"AND" logical relationship exists across the SEL2 card

"OR" logical relationship exists from one SEL2 card to the next

IV. User Defined Report Sequencing

Many of the reports produced by MSIS have a processing option called SORT. It gives the user the option of sequencing a report in a manner other than the natural sequence of the file from which the information is being obtained. If a report contains such an option, there will be a standard input form associated with that report which the user must fill out and submit with the job request in order to have the report in the requested sequence. (See Exhibits and Data Entry Instructions for full details on each report.)

Computer sorts are performed using a "sort key". This key can be defined as a body of information, in order of decreasing importance, used to sequence a greater body of information. The various data elements contained within that sort key are ordered in importance, major to minor, by the user. Therefore, the major key appears first within the sort key followed by fields, in their order of decreasing importance, down to the minor key. This terminology is important to understand in learning how to fill out the input form required to request a resequencing of a report.

Secondly, it is important to understand that the sorts are limited in such a way that the information contained in the sort key cannot exceed thirty (30) characters in their combined lengths. Therefore, when a user is filling out one of the input forms, he must use either a record description or the Data Element Dictionary (DED) to determine the lengths and mnemonic names of the data elements with which he is working. There is one exception to the rule of combining data lengths; if a data element contains more than fifteen (15) characters, only the first fifteen characters will be used in creating the sort key.

All of the input forms for the various reports have the same general format. When filling out the form, order the sort key fields from major to minor significance down the page starting with the number 01. This is a must because the column labeled "Sort Priority" will be used by the computer program to determine major (01) to minor (maximum of 30) significance. The user can fill out a maximum of six input forms per report, of course, as long as the length of the sort key requested is less than 31.

Additionally, each data element can be ordered in either ascending or descending sequence. When working with a data element that could potentially be alphabetic or numeric, it should also be noted that with IBM hardware, numbers are considered "higher" than alphabetic characters. Therefore a number would sort higher than a letter. With many other companies, however, the reverse is true. If your hardware is other than IBM, it is recommended that you ask your programming staff about the "collating sequence" of your

MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

STANDARD HISTORY FILE SELECTION

SORT OPTIONS FOR JOB _____

CARD ID	SORT SEQUENCE	MNEMONIC NAME OF DATA ELEMENT	SORT MODE	
S O R T 1-4	5-6	7-16	17	A=ASCENDING D=DESCENDING
	18-19	20-29	30	A=ASCENDING D=DESCENDING
	31-32	33-42	43	A=ASCENDING D=DESCENDING
	44-45	46-55	56	A=ASCENDING D=DESCENDING
	57-58	59-68	69	A=ASCENDING D=DESCENDING

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Fig. IV.1

machine so that you can make the proper decision when ordering your data.

The following table should be useful in helping the user determine if he would like a report from a certain file to be sequenced in a manner other than its natural sequence.

FILE NAME	NATURAL SEQUENCE
Enforcement Actions File (EAF)	Case ID
Operator & Mailing File (OMF)	Addressee ID
Public History File (PHF)	PWS-ID
Periodic Sample File (PSF)	PWS-ID; Contaminant ID; Location Code; Sample type, date, time and key; Record Type
Public Water File (PWF)	PWS-ID
Regulations File (RGF)	Contaminant ID, Regulation Level
Sample Analysis File (SAF)	PWS-ID; Contaminant ID; location Code; Sample type, date, time and key; Record Type
Standard History File (SHF)	File ID, Record ID, Data Element Catalogue Number, Current Update Date
Variances and Exemptions File (VEF)	Variances and Exemptions ID
Violations File (VIF)	Violation ID

Note: the above files are not a complete list of permanant files, but the only permanent files for which a sort may be done.